Energy Efficiency Solutions

Prevention of air infiltration and of unnecessary outdoor air supply

What is infiltration?

Air infiltration is driven by wind, temperature differences, or HVAC appliance induced pressures. Infiltration is the uncontrolled flow of air into your hotel through adventitious or unintentional gaps and cracks in the hotel building envelope. Other air losses include duct leakage, which is the leakage of air from the seams and joints of ventilation, heating and air conditioning circulation ducts. Unfortunately, there are hundreds of penetrations through a typical hotel's exterior. These gaps and holes are often incurred during framing, and from penetrations for wiring, plumbing, and ducts. Air sealing the hotel's envelope combined with proper ventilation, can reduce your energy bills and eliminate unwanted drafts and pollutants.

What can a tighter building offer your hotel?

- Improved comfort — reduces drafts, noise, and moisture.
- Improved indoor air quality — keeps dust, pollen, car exhaust, and insects out of the hotel.
- Lower costs — reduces escape of conditioned air.

What are the consequences of air infiltration?

The consequences are inferior performance, excessive energy consumption, an inability to provide adequate heating (or cooling) and drastically impaired performance from heat recovery devices.

Did you know that almost half of the energy consumed in hotels is used for space heating and cooling and that an important part of it is just wasted? One solution to avoid this waste is to make sure that there is no air infiltration at doors and windows, and that entrance doors are not a big source of energy loss.

Eliminating air infiltration at doors and windows (draught proofing)

- Badly fitting windows and doors are a big contributor to large heating and cooling bills and could account for up to 20% of your heating/cooling costs!

- Solutions are relatively easy and cheap to install. Products including brush seals, foams, sealants, strips and shaped rubber and plastics are cost effective ways of dealing with the problem.

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- Avoiding energy loss at entrance door

- Entrance doors are usually a big source of energy loss in hotels as many people are coming and going throughout the day. If you have noticed that your front door is left open while the heating or cooling system is on, you may consider having an automatic device installed for closing the door.

- Automatic doors may be an appropriate solution to reduce energy loss at the entrance door.

- Automatic door closer may also be an interesting option.

- Installation of an air curtain may also be an interesting option if you intend to leave your entrance door open.

- An air curtain does not act as a physical barrier, but conditions incoming air and reduces the amount of warm air escaping from the building, thus improving comfort and saving energy.

- With air curtains, warm or cold air stays inside.

Recommendations about draught proofing

- To make sure that draught proofing is installed appropriately and to ensure quality of fit, it is generally best to hire a professional contractor. Draught proofing associations can help you find a qualified professional.

- You may also do the work by yourself, as long as you follow the necessary advice.

- Preferably choose products with quality standard (e.g. the BS 7386 standard in the UK): their performance and durability will be better.
- Be careful not to block air vents designed to ventilate the building!

Recommendations about air curtains

- To guarantee optimum energy-efficiency of the air curtain, you should make sure that the 'jet' of air reaches the floor and covers the entire door width.

How much energy can my hotel save by making it draught proof?

- Because prevention of air infiltration and of unnecessary outdoor air supply helps keep the building warm in winter and cool in summer, it reduces space heating and space cooling needs.

- Potential energy saving on space heating and cooling really depends on the situation, but may be up to 20% in some cases

Link with other solutions in the database

- Besides being a source of air infiltration, your doors and windows may have poor thermal insulation. That is why we recommend that you evaluate the opportunity to change your doors and windows (solution n°VI) before undertaking draught proofing (solution n°VIII).

- Adequate ventilation is as important as draught proofing. So it is necessary to check that the ventilation within the building is still sufficient after elimination of air infiltration. If it is not, solution n°XX (efficient ventilation systems) should be considered.